

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (canceled)

2. (currently amended) A process for producing a group III nitride semiconductor substrate ~~claimed in Claim 1~~, characterized in that the process comprises steps of:

forming a film containing metal element on a base substrate,

forming a group III nitride semiconductor layer including region of voids therein on the metal element-containing film to be brought into direct contact therewith, and

peeling said base substrate with use of said region of voids as a site for peeling to take it away,

wherein said metal element-containing film contains a metal element possessing a decomposing action on a group III nitride semiconductor used for said group III nitride semiconductor layer, and

wherein said region of voids, which is caused by partial decomposition of the group III nitride semiconductor due to a decomposing action of the metal element contained in the metal element-containing film, is formed in direct contact with said metal element-containing film.

3. (previously presented) A process for producing a group III nitride semiconductor substrate claimed in Claim 2, wherein said metal element is a transition element.

4. (previously presented) A process for producing a group III nitride semiconductor substrate claimed in Claim 2, wherein said metal element is scandium, yttrium, titanium, zirconium, hafnium, vanadium, niobium, tantalum, chromium, molybdenum, tungsten, rhenium, iron, ruthenium, osmium, cobalt, rhodium, iridium, nickel, palladium, manganese, copper, platinum or gold.

5. (previously presented) A process for producing a group III nitride semiconductor substrate claimed in Claim 4, wherein said metal element is titanium, zirconium, hafnium, tantalum, platinum, cobalt or nickel.

6. (currently amended) A process for producing a group III nitride semiconductor substrate, characterized in that the process comprises steps of:

forming a film containing metal element on a base substrate,

growing a first group III nitride semiconductor layer on the metal element-containing film to be brought into direct contact therewith,

heat-treating said metal element-containing film and said first group III nitride semiconductor layer at a temperature higher than ~~said~~ a growth temperature for the first group III

nitride semiconductor layer to form region of voids in said first group III nitride semiconductor layer,

forming a second group III nitride semiconductor layer on said first group III nitride semiconductor layer, and

peeling said base substrate with use of said region of voids as ~~the~~ a site for peeling to take it away.

7. (previously presented) A process for producing a group III nitride semiconductor substrate claimed in Claim 6, wherein said growth temperature for the first group III nitride semiconductor layer is within the range of 400°C or higher but 800°C or lower.

8. (currently amended) A process for producing a group III nitride semiconductor substrate claimed in Claim 6, wherein the heat treatment of said metal element-containing film and said first group III nitride semiconductor layer is conducted at a temperature of 900°C or higher but 1,400°C or lower.

9. (previously presented) A process for producing a group III nitride semiconductor substrate claimed in Claim 6, wherein the thickness of said first group III nitride semiconductor layer is in the range of 20 nm or thicker but 2,000 nm or thinner.

10. (previously presented) A process for producing a group III nitride semiconductor substrate claimed in Claim 6, wherein said metal element-containing film is a metal film.

11. (currently amended) A process for producing a group III nitride semiconductor substrate claimed in Claim 6, wherein said metal element-containing film contains a metal element having a decomposing action on ~~the~~ a group III nitride semiconductor used for said first group III nitride semiconductor layer.

12. (previously presented) A process for producing a group III nitride semiconductor substrate claimed in Claim 11, wherein said metal element is a transition element.

13. (previously presented) A process for producing a group III nitride semiconductor substrate claimed in Claim 11, wherein said metal element is scandium, yttrium, titanium, zirconium, hafnium, vanadium, niobium, tantalum, chromium, molybdenum, tungsten, rhenium, iron, ruthenium, osmium, cobalt, rhodium, iridium, nickel, palladium, manganese, copper, platinum or gold.

14. (previously presented) A process for producing a group III nitride semiconductor substrate claimed in Claim 13, wherein said metal element is titanium, zirconium, hafnium, tantalum, platinum, cobalt or nickel.

15. (canceled)

16. (currently amended) A process for producing a group III nitride semiconductor substrate ~~claimed in Claim 15,~~ characterized in that the process comprises steps of:

forming, on a base substrate, a metal element-  
containing film having a fine pore structure therein,

forming a group III nitride semiconductor layer  
including region of voids therein on the metal element-containing  
film to be brought into direct contact therewith, and

peeling said base substrate with use of said region of  
voids as a site for peeling to take it away,

wherein said metal element-containing film contains a  
metal element possessing a decomposing action on a group III  
nitride semiconductor used for the group III nitride  
semiconductor layer,

wherein said region of voids, which is caused by  
partial decomposition of the group III nitride semiconductor due  
to a decomposing action of the metal element contained in the  
metal element-containing film, is formed in direct contact with  
said metal element-containing film.

17. (previously presented) A process for producing a  
group III nitride semiconductor substrate claimed in Claim 16,  
wherein said metal element is a transition element.

18. (previously presented) A process for producing a  
group III nitride semiconductor substrate claimed in Claim 16,  
wherein said metal element is scandium, yttrium, titanium,  
zirconium, hafnium, vanadium, niobium, tantalum, chromium,  
molybdenum, tungsten, rhenium, iron, ruthenium, osmium, cobalt,

rhodium, iridium, nickel, palladium, manganese, copper, platinum or gold.

19. (previously presented) A process for producing a group III nitride semiconductor substrate claimed in Claim 18, wherein said metal element is titanium, zirconium, hafnium, tantalum, platinum, cobalt or nickel.

20. (currently amended) A process for producing a group III nitride semiconductor substrate, characterized in that the process comprises steps of:

forming, on a base substrate, a metal element-containing film, at least ~~the~~ a surface of which is composed of a metal nitride,

carrying out treatment for elimination of the nitrogen contained in said metal nitride,

forming a group III nitride semiconductor layer including region of voids therein on the metal element-containing film to be brought into direct contact therewith, and

peeling said base substrate with use of said region of voids as ~~the~~ a site for peeling to take it away.

21. (previously presented) A process for producing a group III nitride semiconductor substrate claimed in Claim 20, wherein said step of forming the metal element-containing film comprises, after formation of a metal film on said base substrate, a step of treatment for nitrification of the metal film.

22. (previously presented) A process for producing a group III nitride semiconductor substrate claimed in Claim 20, wherein said metal element-containing film is a metal nitride film.

23. (previously presented) A process for producing a group III nitride semiconductor substrate claimed in Claim 20, wherein said treatment for elimination of nitrogen is a treatment in which said metal element-containing film is exposed to a reducing atmosphere.

24. (currently amended) A process for producing a group III nitride semiconductor substrate, characterized in that the process comprises steps of:

forming, on a base substrate, a metal element-containing film, at least ~~the~~ a surface of which is composed of a metal nitride,

growing a group III nitride semiconductor layer on the metal element-containing film to be brought into direct contact therewith under condition that a V/III ratio of raw material gas is set to be ~~10 or less~~ from 7 to 10 to form group III nitride semiconductor layer including region of voids therein, and

peeling said base substrate with use of said region of voids as ~~the~~ a site for peeling to take it away.

25. (currently amended) A process for producing a group III nitride semiconductor substrate claimed in Claim 24, wherein said metal element-containing film contains a metal element

having a decomposing action on a group III nitride semiconductor used for the group III nitride semiconductor layer.

26. (previously presented) A process for producing a group III nitride semiconductor substrate claimed in Claim 25, wherein said metal element is a transition element.

27. (previously presented) A process for producing a group III nitride semiconductor substrate claimed in Claim 25, wherein said metal element is scandium, yttrium, titanium, zirconium, hafnium, vanadium, niobium, tantalum, chromium, molybdenum, tungsten, rhenium, iron, ruthenium, osmium, cobalt, rhodium, iridium, nickel, palladium, manganese, copper, platinum or gold.

28. (previously presented) A process for producing a group III nitride semiconductor substrate claimed in Claim 27, wherein said metal element is titanium, zirconium, hafnium, tantalum, platinum, cobalt or nickel.

29. (currently amended) A process for producing a group III nitride semiconductor substrate claimed in claim [[1]] 2, wherein said metal element -containing film is formed on ~~the whole~~ an entirety of a surface of said base substrate.

30. (canceled)

31. (currently amended) A process for producing a group III nitride semiconductor substrate claimed in claim [[1]] 2, wherein said step of peeling said base substrate to take it away comprises a step of cooling down the temperature of the



atmosphere post to the growth of the group III nitride semiconductor layer to spontaneously peel said base substrate off.

32. (currently amended) A group III nitride semiconductor substrate being produced by using a process for producing a group III nitride semiconductor substrate as claimed in claim [[1]] 2.

33. (new) A group III nitride semiconductor substrate produced by the process of claim 6.

34. (new) A group III nitride semiconductor substrate produced by the process of claim 16.

35. (new) A group III nitride semiconductor substrate produced by the process of claim 20.

36. (new) A group III nitride semiconductor substrate produced by the process of claim 24.